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PLANETARY PHENOMENA FOR JANUARY AND FEBRUARY, 1909.

BY MALCOLM McNEILL.

PHASES OF THE MOON, PACIFIC TIME.

Full Moon.....Jan. 6, 6 ^h 13 ^m A.M.	Full Moon.....Feb. 4, 12 ^h 25 ^m P.M.
Last Quarter... " 14, 10 11 A.M.	Last Quarter... " 13, 4 47 A.M.
New Moon..... " 21, 4 12 P.M.	New Moon..... " 20, 2 52 A.M.
First Quarter.. " 28, 7 7 A.M.	First Quarter.. " 26, 6 49 P.M.

Mercury passed superior conjunction late in December, 1908, becoming an evening star, and remains an evening star until February 11th. It reaches greatest eastern elongation, $18^{\circ} 27'$, on January 26th. This is a very small greatest elongation, as it occurs only four days before perihelion, and in addition the planet is in the southern half of its orbit during the early part of January. This combination makes the present east elongation a decidedly poor one for visibility as an evening star. Still, during the last half of January and for a few days in February the planet remains above the horizon more than an hour after sunset, and for a few days at the end of January nearly an hour and a half after the Sun has set. It may therefore be seen on a clear evening in the western twilight. The conditions for visibility will be much better about the time of the next greatest east elongation, in May. After passing inferior conjunction on February 11th it becomes a morning star, and by the end of the month is well on toward greatest west elongation, and rises more than an hour before sunrise. It is in conjunction with *Venus* on February 19th.

Venus is a morning star throughout January and February, but is gradually approaching superior conjunction with the Sun, the distance diminishing from 31° on January 1st to 14° on February 28th. The planet is also running south of the Sun. These two causes rapidly diminish the interval between the rising of *Venus* and sunrise from a little over two hours to only about half an hour on February 28th. The planet is also at nearly its maximum distance from the Earth,

and consequently not much above its minimum brightness. However, it may easily be seen in the morning twilight, except possibly during the last few days of February. *Venus* is in conjunction with *Uranus* on January 30th, the latter being only 21' south of the former.

Mars is also a morning star, rising shortly before 4 o'clock on January 1st and shortly after 3 o'clock on February 28th. Its motion among the stars during the two months' period is 42° eastward and 5° southward from *Libra* through *Scorpio* and the southern extension of *Ophiuchus* into *Sagittarius*. On January 21st it passes about 5° north of the first magnitude red star *Antares, α Scorpii*. *Mars* passed its maximum distance from the Earth in the early autumn of 1908, and is now drawing nearer somewhat rapidly, the distance diminishing from 196,000,000 miles on January 1st to 151,000,000 miles on February 28th. In consequence of this its brightness will nearly double, and it will become as conspicuous as a good first-magnitude star; but even at the end of February its brightness will be less than five per cent of its brightness at opposition next September.

Jupiter rises at 10^h P.M. on January 1st and just before sunset on February 28th, as it comes to opposition on the morning of February 28th. It moves westward, retrogrades about 5° , and southward 2° , in the constellation *Leo*, during the two months, toward the first-magnitude star *Regulus, α Leonis*, and at the end of the period is about 11° east and south of the star.

Saturn is an evening star throughout the period, setting at about 11^h 30^m P.M. on January 1st, and shortly after 8^h P.M. on February 28th. It is therefore in good position for observation throughout the two months. It moves about 5° east and 2° north among the stars in the constellation *Pisces*. On January 1st it is about 5° east of the vernal equinox. On January 1st, as seen in the telescope, the apparent width of the rings is not quite one tenth of their breadth. During the year this ratio increases to about one quarter, but toward the close of the year it will diminish to about one fifth.

Uranus on January 1st is an evening star, setting about half an hour after sunset, and is much too near the Sun for

observation even with a telescope. It passes conjunction with the Sun and becomes a morning star on January 7th. By the end of February it rises about three hours before sunrise. Its conjunction with *Venus* on January 30th has already been noted. It moves about 3° eastward in the constellation *Sagittarius* during the two months.

Neptune is in opposition with the Sun and rises at sunset on January 5th. It is moving slowly westward in the constellation *Gemini*, and is a few degrees south and west of *Castor* and *Pollux*, the brightest stars of the constellation.

(SIXTY-FIFTH) AWARD OF THE DONOHUE
COMET-MEDAL.

The Comet-Medal of the Astronomical Society of the Pacific has been awarded to Professor Dr. MAX WOLF, Heidelberg, Germany, for his discovery of an unexpected comet on January 2, 1908.

Committee on the Comet-Medal:

W. W. CAMPBELL,
C. D. PERRINE,
S. D. TOWNLEY.

SAN FRANCISCO, December 7, 1908.

(SIXTY-SIXTH) AWARD OF THE DONOHUE
COMET-MEDAL.

The Comet-Medal of the Astronomical Society of the Pacific has been awarded to Professor D. W. MOREHOUSE, Drake University, Des Moines, Iowa, for his discovery of an unexpected comet on September 1, 1908.

Committee on the Comet-Medal:

W. W. CAMPBELL,
C. D. PERRINE,
S. D. TOWNLEY.

SAN FRANCISCO, December 7, 1908.